Data Validation- Level III - $PM_{2.5}$

The 3rd Level review process is usually conducted by the management. The 3rd level data reviewers are responsible for ensuring the data is ready to upload into AQS. The level III reviewer ensures that the data are complete; the stations have been maintained properly, and operating within acceptable criteria. Any concerns should be addressed to appropriate sections or agencies; to submit the data validation letter with the data set for upload (for districts which CARB uploads data for).

Review the December 2013 Hourly BAM data provided from the Sacramento Del Paso Manor (DPM).

4) **Answer the following questions:**

- What are some of the different checks you did as a level III reviewer? Did you find anything that need to be corrected?

- What information did you use to validate the Level I and Level II work?

- Did the Site Operator perform all the necessary QA/QC checks?

- What is the main objective of the Level III reviewer in plain language?

- What was helpful for your validation that the Level I and Level II reviewer provided?

5) **Sign the Data validation letter to submit with your monthly data set.**

SACRAMENTO METROPOLITAN
AIR QUALITY
MANAGEMENT DISTRICT

(INSERT APCO NAME)
AIR POLLUTION CONTROL OFFICER

January 25, 2014

Ms. Gayle Sweigert
California Air Resources Board
1001 I Street
Sacramento, California 95812

Dear Ms. Sweigert:

I have reviewed the appropriate quality control documents used by Sacramento Metropolitan AQMD and attest that the air monitoring data for the time period of NOVEMBER 2013 for SMAQMD operated sites[1] have been validated in accordance with the criteria established in the ARB procedures for data validation and are acceptable for upload to AQS. This letter invalidates the data as noted in enclosure A, invalid data (Significant Data Impact). Furthermore, valid data impacted by unusual events are noted with informational only qualifier code and can be found in enclosure B.

If you have any questions regarding the data, please feel free to contact me at (916) 999-9999

Sincerely,

, Manager
Air Monitoring

Enclosure:
A. Data Not Validated

cc:

[1] Sacramento-Branch Center, Elk Grove-Bruceville Rd., Sacramento-Del Paso Manor, Sacramento-El Camino Watt, Folsom-Natoma St., Sacramento-Golden Land Ct., North Highlands-Blackfoot Way, Sacramento-Health Dept., Sloughhouse-Sloughhouse Rd.

A. Data invalidated

Site[2]	Para-meter	POC	Begin Date and Time	End Date and Time	Number of hours impacted	Flag	Comment
0006	88502	2	12/21 Hr18:00	12/23 Hr 09:00	16	AN	There was a tape break in the PM2.5 analyzer. Site Operator replaced the tape on 12/23/13 09:00
0006	88502	2	12/24 Hr 19:00	12/25 Hr 0:00	5	W	Low flow value due to overloading. Caused by a fire near the station.
0006	88502	2	12/3 Hr 11 12/3 Hr 13	12/3 Hr 12 12/3 Hr 14	2	BR	Sample value below acceptable range, unexplained negative values between the hours 11-15
0011	42600 42601 42612	1 2 1	12/19 Hr 11	12/20 Hr 06	20	BK	Communication cable on NO_Y became loose
0011	11203	1	12/1 Hr 00	12/31 Hr 23	744	AN	Light scatter monitor malfunctioned
0011	43102	2	12/4 Hr 23	12/5 Hr 11	13	AN	Fuse on N_2 generator (support gas for NMHC analyzer) was blown and replaced
0011	43102	2	12/25 Hr 10	12/27 Hr 23	62	AN	Fuse on N_2 generator (support gas for NMHC analyzer) was blown and replaced, site operator let the analyzer stabilize
0012	43102	1	12/2 HR 03	12/5 Hr 9	79	AN	N_2 generator (support gas for NMHC analyzer) had communication failure
0012	43102	1	12/28 Hr 15	12/29 Hr 09	19	AN	N_2 generator (support gas for NMHC analyzer) malfunctioned
0012	44201	1	12/28 Hr 22	12/29 Hr 09	12	AN/AT	O_3 analyzer malfunctioned
0014	42603 42601 42602	1	12/14 Hr 10	12/31 Hr 23	422	BA	Site operator overhauls NO_2 analyzer: rebuilt pump, replaced flow sensor connector
0002	44201 42101 42603 42601 42602 62107	1	12/14 Hr 17	12/14 Hr 23	7	AV	Power failure caused all instruments to shut down
5003	44201	1	12/24 Hr 18	12/27 Hr 09	65	AN/AT	O_3 pump malfunctioned and was replaced
4001	81102	3	12/1 Hr 00	12/31 Hr 23	744	AN	PM_{10} monitor malfunctioned

[2] Sacramento-Branch Center ("0284"), Elk Grove-Bruceville Rd. ("0011"), Sacramento-Del Paso Manor ("0006"), Sacramento-El Camino Watt ("0007"), Folsom-Natoma St. ("0012"), Sacramento-Golden Land Ct. ("0014"), North Highlands-Blackfoot Way ("0002"), Sacramento-Health Dept. ("4001), Sloughhouse-Sloughhouse Rd. ("5003")

B. Data with Informational Only Qualifier Code

Site[3]	Para-meter	POC	Begin Date and Time	End Date and Time	Number of hours im-pacted	Informational Only Qualifier Code	Comment
0006	88502	2	12/24/13 10:00	12/25/13 05:00	18	IT	High than usual PM2.5 concentrations due to a fire that occurred next to the station.
0006	88502	2	12/24/13 12:00	12/25/13 05:00	18	IT	High than usual PM2.5 concentrations due fireworks

[3] North Highlands-Blackfoot Way ("0002"), Sacramento-Del Paso Manor ("0006"), Sacramento-El Camino Watt ("0007"), Elk Grove-Bruceville Rd. ("0011"), Folsom-Natoma St. ("0012"), Sacramento-Golden Land Ct. ("0014"), Sacramento-Branch Center ("0284"), Sacramento-Health Dept. ("4001), Sloughhouse-Sloughhouse Rd. ("5003")

Capture Rates

Site	Parameter	Missing Records	Missing Data[%]	Data Capure Rate
Bruceville	O3	72	10	90
Bruceville	NOX	23	3.09	96.91
Bruceville	NO	23	3.09	96.91
Bruceville	NO2	23	3.09	96.91
Bruceville	CH4	37	4.97	95.03
Bruceville	NMHC	37	4.97	95.03
Bruceville	TEMP_In	4	0.54	99.46
Bruceville	TEMP_10m	3	0.4	99.6
Bruceville	RH	5	0.67	99.33
Bruceville	SRD	5	0.67	99.33
Bruceville	UVR	5	0.67	99.33
Bruceville	BP	5	0.67	99.33
Bruceville	RAIN	32	4.3	95.7
Bruceville	WD	5	0.67	99.33
Bruceville	WS	5	0.67	99.33
Bruceville	PM25	89	11.96	88.04
Bruceville	Station Average	324	2.72	97.28
Del Paso Manor	**O3**	**26**	**3.49**	**96.51**
Del Paso Manor	**CO**	**744**	**100**	**0**
Del Paso Manor	**NOX**	**19**	**2.55**	**97.45**
Del Paso Manor	**NO**	**19**	**2.55**	**97.45**
Del Paso Manor	**NO2**	**19**	**2.55**	**97.45**
Del Paso Manor	**SO2**	**744**	**100**	**0**
Del Paso Manor	**CH4**	**23**	**3.09**	**96.91**
Del Paso Manor	**NMHC**	**23**	**3.09**	**96.91**
Del Paso Manor	**PM10 - TEOM**	**744**	**100**	**0**
Del Paso Manor	**PM25_BAM**	**0**	**0**	**100**
Del Paso Manor	**TEMP_In**	**1**	**0.13**	**99.87**
Del Paso Manor	**TEMP_10m**	**1**	**0.13**	**99.87**
Del Paso Manor	**RH**	**1**	**0.13**	**99.87**
Del Paso Manor	**SRD**	**1**	**0.13**	**99.87**
Del Paso Manor	**WD**	**4**	**0.54**	**99.46**
Del Paso Manor	**WS**	**1**	**0.13**	**99.87**
Del Paso Manor	**BC**	**2**	**0.27**	**99.73**
Del Paso Manor	**LSCAT**	**744**	**100**	**0**
Del Paso Manor	**SO2-T**	**52**	**6.99**	**93.01**
Del Paso Manor	**NO(-y)**	**10**	**1.34**	**98.66**
Del Paso Manor	**NOZ**	**10**	**1.34**	**98.66**
Del Paso Manor	**NOY**	**10**	**1.34**	**98.66**
Del Paso Manor	**CO-T**	**19**	**2.55**	**97.45**
Del Paso Manor	**Station Average**	**3220**	**18.82**	**81.18**
Folsom / 50	O3	22	2.96	97.04
Folsom / 50	NOX	505	67.88	32.12
Folsom / 50	NO	505	67.88	32.12
Folsom / 50	NO2	505	67.88	32.12
Folsom / 50	CH4	154	20.7	79.3
Folsom / 50	NMHC	154	20.7	79.3

Folsom / 50	TEMP_In	0	0	100
Folsom / 50	TEMP_10m	0	0	100
Folsom / 50	RH	0	0	100
Folsom / 50	SRD	0	0	100
Folsom / 50	WD	0	0	100
Folsom / 50	WS	0	0	100
Folsom / 50	PM25 FEM	1	0.13	99.87
Folsom / 50	NO(-y)	1	0.13	99.87
Folsom / 50	NOZ	1	0.13	99.87
Folsom / 50	NOY	1	0.13	99.87
Folsom / 50	Station Average	1849	15.53	84.47
Goldenland	O3	29	3.9	96.1
Goldenland	CO	29	3.9	96.1
Goldenland	NOX	49	6.59	93.41
Goldenland	NO	49	6.59	93.41
Goldenland	NO2	49	6.59	93.41
Goldenland	CH4	38	5.11	94.89
Goldenland	NMHC	38	5.11	94.89
Goldenland	PM10 - TEOM	66	8.87	91.13
Goldenland	TEMP_In	0	0	100
Goldenland	TEMP_10m	59	7.93	92.07
Goldenland	RH	1	0.13	99.87
Goldenland	SRD	1	0.13	99.87
Goldenland	WD	1	0.13	99.87
Goldenland	WS	1	0.13	99.87
Goldenland	Station Average	410	3.94	96.06
North Highlands	O3	50	6.72	93.28
North Highlands	CO	50	6.72	93.28
North Highlands	NOX	50	6.72	93.28
North Highlands	NO	50	6.72	93.28
North Highlands	NO2	50	6.72	93.28
North Highlands	SO2	744	100	0
North Highlands	TEMP_In	0	0	100
North Highlands	Station Average	994	19.09	80.91
Sloughhouse Road	O3	15	2.02	97.98
Sloughhouse Road	TEMP_In	0	0	100
Sloughhouse Road	WD	0	0	100
Sloughhouse Road	WS	0	0	100
Sloughhouse Road	PM25_aqi	1	0.13	99.87
Sloughhouse Road	Station Average	16	0.43	99.57